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Observations of the Vertical Diameter of the Planet Jupiter.

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(*Communicated by Dr. A. M. W. Downing.*)

Telescope used 5-inch reflector, power 125 and 50 diameter s with Slade's micrometer.

1892.	No. of Observations.	Mean Value of one Night's Observations (vertical diameter).	Observed diameter reduced to dist. 5·20.	Obs. Vertical Diameter reduced to the Polar Value at dist. 5·20.	Error made on one night's observation, mean value =36″·11.
1892. Oct. 18	20	48″·03	36″·59	36″·16	+0″·05
25	40	47·93	36·75	36·32	+0·21
29	30	47·15	36·30	35·87	−0·24
Nov. 3	50	46·36	35·97	35·54	−0·57
10	40	45·95	36·14	35·71	−0·40
30	20	43·66	36·11	35·68	−0·43
Dec. 1	20	44·46	36·95	36·52	+0·41
2	10	44·07	36·75	36·33	+0·22
5	20	43·58	36·68	36·25	+0·14
6	20	43·08	36·38	35·95	−0·16
12	20	41·52	35·74	35·31	−0·81
13	10	41·67	36·00	35·57	−0·54
15	20	41·96	36·48	36·05	−0·06
1893. Nov. 22	20	47·93	37·17	36·99	+0·88
28	14	46·86	36·48	36·30	+0·19
Dec. 4	20	46·20	36·21	36·03	−0·08
5	5	46·38	36·39	36·21	+0·10
6	20	46·40	36·46	36·28	+0·17
7	20	46·58	36·66	36·48	+0·37
8	20	45·98	36·25	36·07	−0·04
9	20	45·38	35·83	35·65	−0·46
11	20	45·85	36·33	36·15	+0·04
12	20	45.92	36·41	36·23	+0·11
14	40	45·88	36·57	36·39	+0·28
15	20	45·77	36·55	36·37	+0·26
20	21	44·42	35·87	35·69	−0·42

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1892.	No. of Observations.	Mean Value of one Night's Observations (vertical diameter).	Observed diameter reduced to dist. 5·20.	Obs. Vertical Diameter reduced to the Polar Value at dist 5·20.	Error made on one night's observation, mean value =36″·11.
1893.		″	″	″	″
Dec. 22	40	44·54	36·14	35·96	−0·15
23	20	44·88	36·50	36·32	+0·21
1894.					
Dec. 22	20	45·26	36·19	36·16	+0·05
26	20	45·15	36·12	36·09	−0·02
27	12	45·34	36·30	36·27	+0·16
29	30	45·50	36·47	36·44	+0·33
1895.					
Jan. 2	20	45·30	36·42	36·39	+0·28
4	20	45·12	36·35	36·32	+0·21
5	20	45·11	36·38	36·35	+0·24
18	40	43·51	35·80	35·77	−0·34
21	20	43·92	36·56	36·53	+0·42
22	20	43·35	35·97	35·94	−0·17
23	20	43·67	36·32	36·29	+0·18
24	5	43·76	36·47	36·44	+0·33
25	3	43·56	36·39	36·36	+0·25
Feb. 11	10	41·08	35·90	35·87	−0·24
14	10	40·86	36·06	36·03	−0·08
23	10	40·07	36·37	36·34	+0·23
25	20	39·54	36·12	36·09	−0·02
27	20	38·94	35·80	35·77	−0·34
Total	960		Observations	= 36·11	

				Vert. Diam.	Correction.	Polar Diam.	Power.
				″	″	″	
From	320	obs.	1892	= 36·37	−0·43	= 35·94	125
,,	320	,,	1893	= 36·39	−0·18	= 36·21	125
,,	320	,,	1894–5	= 36·22	−0·03	= 36·19	50
Total	960	,,	Mean Polar Value	...	...	= 36·11 at dist.	5·20

In the reduction of these observations to the True Polar Value the compression of the polar axis is assumed to be $\frac{1}{16}$.

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Results of Double-star Measures with the 8-inch Equatorial at Windsor, New South Wales, in 1894.

By John Tebbutt.

Ref. No.	Star.	Observed Magnitude	Approx. Place of Star. R. A.	Approx. Place of Star. Dec. S.	Fraction of Year.	Position Angle.	No. of Obs.	Distance.	No. of Obs.	Mag. Power.	Eyes.	Hour-angles.		Weight, 1 to 5.
			h m	° ′		°		″				h m	h m	
1	*β* Phœnicis	5, 5	1 1·4	47 17	·838	21·8	10	1·68	8	300	P	1 33 E	1 1 E	5
2	,,	5, 5	,,	,,	·841	22·5	10	1·80	10	300	P	3 25 E	2 58 E	5
3	,,	...	,,	,,	·846	23·2	10	...	...	300	P	3 19 E	2 59 E	3
4	,,	...	,,	,,	·849	24·9	10	1·45	10	300	P	3 18 E	2 51 E	5
5	*ζ* Phœnicis	4, 8	1 3·9	55 49	·890	243·2	10	...	...	230	P	1 35 E	1 1 E	2
6	,,	4, 8	,,	,,	·890	...	...	6·52	8	138	P			3
7	*κ* Toucani	5, 7	1 12·2	69 26	·846	354·9	10	5·50	10	300	P	2 49 E	2 18 E	4
8	,,	5½, 8	,,	,,	·849	354·9	10	5·49	10	300	R	2 47 E	2 18 E	4
9	,,	5, 8	,,	,,	·887	354·4	10	5·58	10	300	R	1 5 E	0 33 E	5
10	*h* 3447	...	1 31·2	30 27	·846	90·7	10	...	...	300	P	2 9 E	...	4
11	,,	5½, 8	,,	,,	·849	92·0	10	2·05	8	300	P	1 58 E	1 27 E	4
12	,,	6, 8½	,,	,,	·884	91·4	10	2·16	7	300	R	1 45 E	1 19 E	4
13	,,	6, 8½	,,	,,	·887	91·3	10	2·07	8	300	R	2 16 E	1 51 E	4
14	*p* Eridani	...	1 35·8	56 44	·772	...	...	7·59	10	170	R	5 4 E	4 47 E	4
15	,,	...	,,	,,	·772	...	...	7·37	10	170	P	1 54 E	1 34 E	5
16	,,	...	,,	,,	·775	...	...	7·26	10	170	R	4 32 E	4 14 E	4
17	,,	...	,,	,,	·775	222·9	7	...	...	300	P	3 53 E	3 21 E	3
18	,,	...	,,	,,	·780	225·3	20	6·99	10	300	P	3 55 E	3 13 E	4
19	,,	...	,,	,,	·789	224·4	10	7·34	10	300	P	...	3 21 E	5